

CLAIMS:

1. Removable roof for a motor vehicle passenger car, which covers an opening between a windshield frame and a vehicle body frame structure of a body of the passenger car extending behind vehicle occupant seats, said roof comprising dimensionally stable material and, on the one hand, is held in position by a form-lockingly acting fixing system and, on the other hand, by a locking system,

wherein the roof comprises two roof elements fitted together without hinges in a longitudinal center plane of the passenger car, each roof element cooperating with the windshield frame by a first fixing device and a second fixing device of the fixing system, and cooperating with the vehicle body frame structure by a locking device of the locking system.

2. Removable roof according to Claim 1, wherein the first fixing device has a flange-type forward roof extension of the roof element of the roof which extends in a longitudinal direction of the vehicle and reaches under an exterior leg wall of an open U-shaped receiving device of an upper cross member of the windshield frame, which receiving device is oriented toward the roof element.

3. Removable roof according to Claim 2, wherein the second fixing device comprises at least one bearing journal which projects into a receiving bore.

4. Removable roof according to Claim 3, wherein the bearing journal is provided on the roof element and the receiving bore is provided on the windshield

frame.

5. Removable roof according to Claim 4, wherein the receiving bore is provided in a metallic insert which is integrated in the windshield frame.

6. Removable roof according to Claim 4, wherein adjacent to its free end, the bearing journal has a molded-on guide with a largest diameter (D_g), from which, on the one side, the bearing journal merges into a shaft of a smaller diameter (D_k) and, on the other side, tapers off as a conical tip.

7. Removable roof according to Claim 3, wherein the bearing journal is held in position by means of an elastic device on the roof element.

8. Removable roof according to Claim 7, wherein the elastic device has two elastic bodies which are spaced in a transverse direction of the vehicle and have a circular-cylindrical cross-section and which, on the one side, are held on a cross member of the roof element and, on the other side, are connected with a plate-type holding member for the bearing journal.

9. Removable roof according to Claim 8, wherein each elastic body rests by a threaded pin in a threaded bore in a metallic insert of the roof element.

10. Removable roof according to Claim 8, wherein the holding member is connected by means of screws with the elastic bodies.

11. Removable roof according to Claim 8, wherein the bearing pin extends in a longitudinal center plane between the elastic bodies and, by means of a threaded pin and a screw nut, is connected with the holding member.

12. Removable roof according to Claim 8, wherein the elastic device with the elastic bodies and the holding member is arranged at least in a largely sunk manner in a recess of the roof part.

13. Removable roof according to Claim 8, wherein for each roof element, two bearing pins with elastic bodies are provided which cooperate with corresponding receiving bores of the windshield frame.

14. Removable roof according to Claim 3, wherein in a longitudinal sectional view, the bearing journal extends at an acute angle (α) with respect to a horizontal line.

15. Removable roof according to Claim 3, wherein the bearing journal of the second fixing device and the flange-type roof extension of the first fixing device extend at an acute angle (β) with respect to one another in a longitudinal sectional view.

16. Removable roof according to Claim 2, wherein in a longitudinal sectional view, the roof extension is constructed as a step with respect to an

exterior wall of the roof element extending flush with the exterior leg wall of the receiving device.

17. Removable roof according to Claim 16, wherein viewed in the longitudinal sectional view, a first sealing section is provided between the exterior leg wall and the roof element, and a second sealing section is provided between an interior wall of the roof element and an interior leg wall of the receiving device.

18. Removable roof according to Claim 17, wherein the first sealing section and the second sealing section are components of a sealing body which extends with fitting walls along the exterior leg wall of a web wall and the interior leg wall of the receiving device.

19. Removable roof according to Claim 18, wherein the sealing body has a web extending away from the second sealing section, the second sealing section and the web forming a type of groove.

20. Removable roof according to Claim 1, wherein the locking device comprises an operating device with a locking pin which cooperates with a closing crank.

21. Removable roof according to Claim 20, wherein the operating device is fastened to the roof element, and the closing crank is fastened to the rollover bar

device.

22. Removable roof according to Claim 20, wherein the locking pin is fastened to a crank arm connected with a swivel shaft which is connected with a manual lever.

23. Removable roof according to Claim 20, wherein a fixing system is operative between the operating device and the closing crank.

24. Removable roof according to Claim 23, wherein the fixing system has an upright conical pin which cooperates with a receiving opening.

25. Removable roof according to Claim 24, wherein the pin is mounted on the operating device, and the receiving opening is mounted on the closing crank.

26. Removable roof according to Claim 22, wherein the manual lever is accommodated in a recess of the roof element.

27. Removable roof according to Claim 26, wherein the manual lever comprises a control plate which is aligned flush with surfaces with respect to interior walls of the roof element.

28. Removable roof according to Claim 22, wherein the fixing system has an upright conical pin which cooperates with a receiving opening, and

wherein the manual lever, the swivel shaft and the pin are constructionally combined and are fastened by screws on the roof element.

29. Removable roof according to Claim 28, wherein the receiving opening and the closing crank are constructionally combined and are fastened by screws to the rollover bar system.

30. Removable roof according to Claim 20, wherein for each roof element, two operating devices are provided which cooperate with corresponding closing cranks on the rollover bar system.

31. Removable roof according to Claim 1, wherein each roof element projects, by means of a rearward wall extension, beyond a groove of the rollover bar system and, by means of a first sealing section and a second sealing section, extends to the groove or the rollover bar system.

32. Removable roof according to Claim 31, wherein the first sealing section is provided between a free end of the roof extension and an upright wall of the rollover bar system.

33. Removable roof according to Claim 31, wherein the second sealing section is effective between an interior wall of the roof extension and a horizontal wall of the groove.

34. Removable roof according to Claim 1, wherein along the longitudinal center plane of the roof, the one roof element by means of a first lateral roof element extension projects beyond the groove of the other roof element which, by means of a second lateral roof element extension, also projects beyond the groove, and

wherein, for sealing-off the roof elements along the longitudinal center plane, a first sealing section, a second sealing section and a third sealing section are operative.

35. Removable roof according to Claim 34, wherein the first sealing section and the third sealing section are constructed as sealing lips which interact with interior walls of the first lateral roof element extension and of the second lateral roof element extension respectively.

36. Removable roof according to Claim 34, wherein the second sealing section extends between the roof elements and is constructed as a sealing body with a circular cross-section, on which ends of the first lateral roof element extension and of the second lateral roof element extension are supported.

37. Removable roof according to Claim 34, wherein the sealing sections are components of a sealing body which is made of one piece and is held in position in the groove of the other roof element.

38. Removable roof according to Claim 35, wherein the sealing sections

are components of a sealing body which is made of one piece and is held in position in the groove of the other roof element.

39. Removable roof according to Claim 36, wherein the sealing sections are components of a sealing body which is made of one piece and is held in position in the groove of the other roof element.

40. A passenger vehicle roof assembly for manually removable and replaceable roof members operable to cover vehicle roof opening between a windshield frame and a vehicle body frame structure, said roof assembly comprising;

first and second dimensionally stable roof elements configured to be fitted together in a longitudinal centerplane of the vehicle,

a fixing system for accommodating form locking fixing of the roof elements at the windshield frame, said fixing system including a pair of spaced first and second fixing devices for each roof element, and

a locking system operable to lock the roof elements at the vehicle body frame structure, said locking system including a locking device for each roof element.

41. A roof assembly according to Claim 40, wherein the first fixing device has a flange-type forward roof extension of the roof element of the roof which extends in a longitudinal direction of the vehicle and reaches under an exterior leg wall of an open U-shaped receiving device of an upper cross member

of the windshield frame, which receiving device is oriented toward the roof element.

42. A roof assembly according to Claim 41, wherein the second fixing device comprises at least one bearing journal which projects into a receiving bore.

43. A roof assembly according to Claim 42, wherein the bearing journal is provided on the roof element and the receiving bore is provided on the windshield frame.

44. A roof assembly according to Claim 42, wherein the bearing journal is held in position by means of an elastic device on the roof element.

45. A roof assembly according to Claim 44, wherein the elastic device has two elastic bodies which are spaced in a transverse direction of the vehicle and have a circular-cylindrical cross-section and which, on the one side, are held on a cross member of the roof element and, on the other side, are connected with a plate-type holding member for the bearing journal.

46. A roof assembly according to Claim 40, wherein the locking device comprises an operating device with a locking pin which cooperates with a closing crank.

47. A roof assembly according to Claim 46, wherein the operating device

is fastened to the roof element, and the closing crank is fastened to the vehicle body frame structure.

48. A roof assembly according to Claim 46, wherein the locking pin is fastened to a crank arm connected with a swivel shaft which is connected with a manual lever.

49. A roof assembly according to Claim 40, wherein along the longitudinal center plane of the roof, the one roof element by means of a first lateral roof element extension projects beyond the groove of the other roof element which, by means of a second lateral roof element extension, also projects beyond the groove, and

wherein, for sealing-off the roof elements along the longitudinal center plane, a first sealing section, a second sealing section and a third sealing section are operative.

50. A roof assembly according to Claim 49, wherein the first sealing section and the third sealing section are constructed as sealing lips which interact with interior walls of the first lateral roof element extension and of the second lateral roof element extension respectively.

51. A roof assembly according to Claim 49, wherein the sealing sections are components of a sealing body which is made of one piece and is held in position in the groove of the other roof element.